SESSION	**: 11**
CLASS	**: IV**
SUBJECT	**: MATHEMATICS**
CHAPTER NUMBER	**: 11**
CHAPTER NAME	**: FRACTIONS**
SUBTOPIC	**: EQUIVALENT FRACTIONS AND FINDING EQUIVALENT FRACTIONS**

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LEARNING OBJECTIVE

- **Enable the students to understand about the equivalent fractions and how to find the equivalent fractions.**

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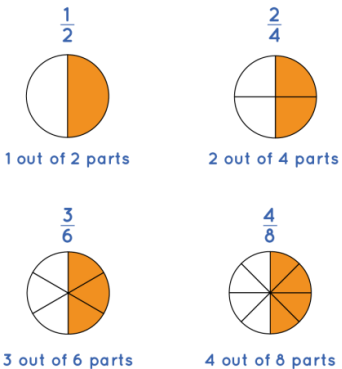
TYPES OF FRACTIONS

EQUIVALENT FRACTIONS

Equivalent fractions are those **fractions** which can be **simplified** to the same **fraction** i.e. **fraction** that represent the same of the whole.

We can simplify a **fraction** by dividing both the **numerator** and the **denominator** of the **fraction** by the **same** number.



EQUIVALENT FRACTIONS

EQUIVALENT FRACTIONS

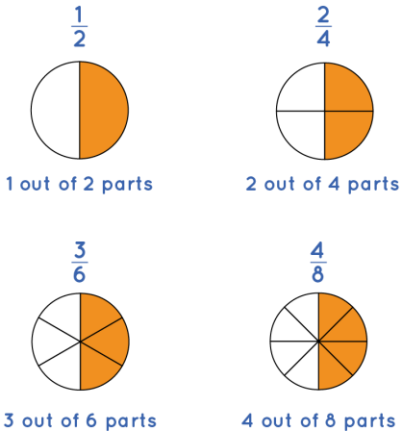
EXAMPLE : Consider the **fraction** $\frac{8}{24}$. Here, the **denominator** i.e. **24** is divisible by the **numerator 8**.

Therefore, upon dividing,

We get –

$\frac{\cancel{8}^{1}}{\cancel{24}_{3}} = \frac{1}{3}$ $\left(\frac{8 \div 8}{24 \div 8} = \frac{1}{3}\right)$

Here, $\frac{1}{3}$ is the simplified form of $\frac{8}{24}$.



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EQUIVALENT FRACTIONS

EQUIVALENT FRACTIONS

EXAMPLE : Now consider two fractions $\frac{6}{20}$ and $\frac{15}{50}$.

Simplify both the **fractions**

$\frac{1}{2}$

1 out of 2 parts

$\frac{2}{4}$

2 out of 4 parts

$\frac{3}{6}$

3 out of 6 parts

$\frac{4}{8}$

4 out of 8 parts

$$\frac{6 \div 2}{20 \div 2} = \frac{\cancel{6}^{3}}{\cancel{20}_{10}} = \frac{3}{10}$$ **[divided by 2]**

$$\frac{15 \div 5}{50 \div 5} = \frac{\cancel{15}^{3}}{\cancel{50}_{10}} = \frac{3}{10}$$ **[divided by 5]**

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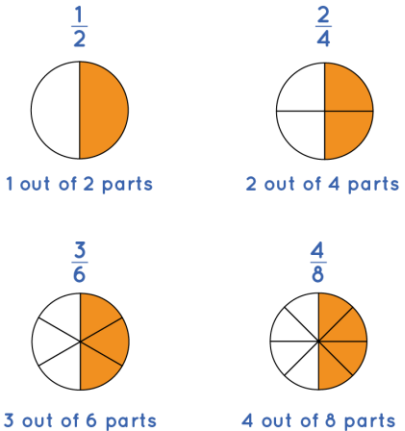
EQUIVALENT FRACTIONS

EQUIVALENT FRACTIONS

EXAMPLE :

Since both of these **fractions** can be **simplified** to $\frac{3}{10}$, they are **equivalent fractions**.



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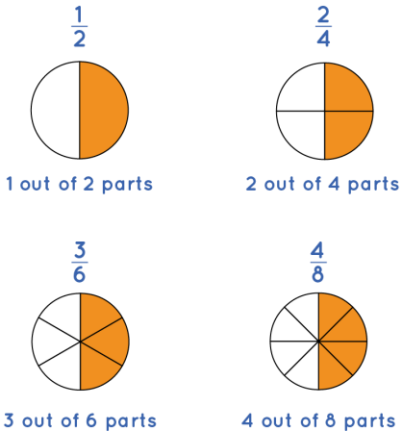
EQUIVALENT FRACTIONS

EQUIVALENT FRACTIONS

Another quick to check whether two or more **fractions** are **equivalent** is to multiply the **numerator** of the first **fraction** by the **denominator** of the second **fraction** and to multiply the **denominator** of the first **fraction** by the **numerator** of the second **fraction**. If both the products are the same, then the **fractions** are **equivalent**.



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EQUIVALENT FRACTIONS

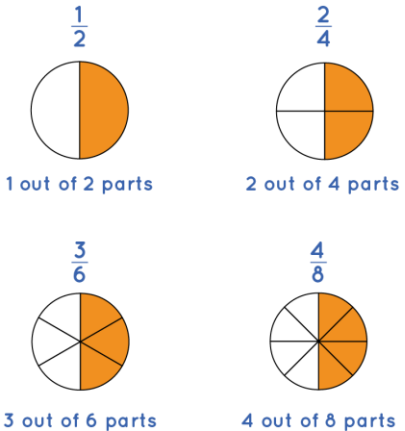
EQUIVALENT FRACTIONS

EXAMPLE : Consider the $\frac{6}{20}$ and $\frac{15}{50}$ again.

Multiply as shown by the arrows

$$\frac{6}{20} \quad \frac{15}{50}$$

$6 \times 50 = 300$ and $20 \times 15 = 300$



Since, the answer is 300 in both the cases, $\frac{6}{20}$ and $\frac{15}{50}$ are **equivalent fractions**.

EQUIVALENT FRACTIONS

EQUIVALENT FRACTIONS

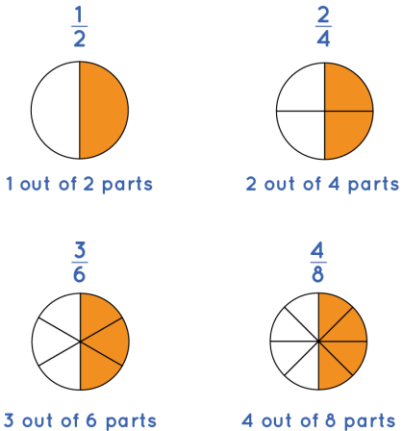
EXAMPLE : Are $\frac{7}{15}$ and $\frac{9}{11}$ equivalent fractions?

ANSWER: Multiple as shown $\frac{7}{15}$ $\frac{9}{11}$

$7 \times 11 = \mathbf{77}$

$15 \times 9 = \mathbf{135}$

Since, the product are not equal, $\frac{7}{15}$ and $\frac{9}{11}$ are not equivalent fractions.

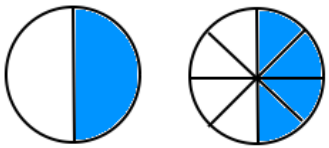


EQUIVALENT FRACTIONS

FINDING EQUIVALENT FRACTIONS

To find the equivalent **fractions** of a given **fraction**, we multiply or divide the **numerator** and the **denominator** of the **fraction** by the same number other than **zero** or **one**.

Equivalent fractions



$\frac{1}{2} = \frac{4}{8}$

0.5 = 0.5

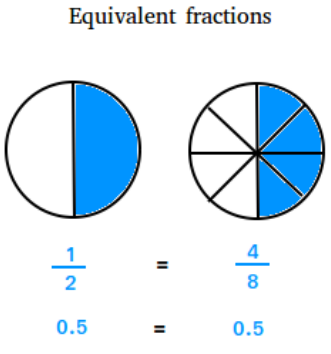
EQUIVALENT FRACTIONS

FINDING EQUIVALENT FRACTIONS

EXAMPLE : 1 Find the equivalent fractions of $\frac{2}{13}$.

ANSWER: Equivalent fractions of $\frac{2}{13}$ are: $\frac{2\times2}{13\times2} = \frac{4}{26}$; $\frac{2\times3}{13\times3} = \frac{6}{39}$

; $\frac{2\times4}{13\times4} = \frac{8}{52}$; $\frac{2\times5}{13\times5} = \frac{10}{65}$; etc.



For more **equivalent fractions** of $\frac{2}{13}$, we can further multiply the **numerator** and **denominator** by 6, 7, 8, 9, 10,……. etc,.

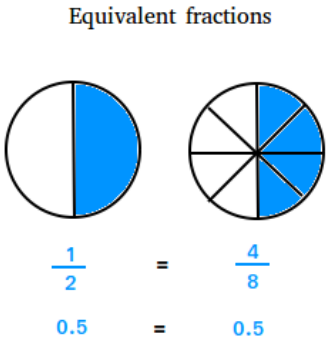
EQUIVALENT FRACTIONS

FINDING EQUIVALENT FRACTIONS

EXAMPLE : 2 Find two equivalent fractions of $\frac{16}{20}$.

ANSWER: Equivalent fractions of $\frac{16}{20}$ will be:

$$\frac{16 \div 2}{20 \div 2} = \frac{8}{10} \; ; \; \frac{16 \div 4}{20 \div 4} = \frac{4}{5} \; ; \text{ etc.}$$



$\therefore$ $\frac{16}{20}$, $\frac{8}{10}$ and $\frac{4}{5}$ are **equivalent fractions**.

LEARNING OUTCOME:

Students are able to understand the meaning of equivalent fractions and how to find the equivalent fractions.

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THANKING YOU

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